



GRADE

4

**Instructional
Materials**

FOR THE

**CRITERION
REFERENCED
TEST**

Nevada

Grade 4

MATHEMATICS

KEITH W. RHEAULT
*Superintendent of Public
Instruction*

STATE OF NEVADA



SOUTHERN NEVADA OFFICE
1820 E. Sahara, Suite 205
Las Vegas, Nevada 89104-3746
(702) 486 - 6455
Fax: (702) 486 - 6450

GLORIA P. DOPF
Deputy Superintendent
Instructional, Research and
Evaluative Services

JAMES R. WELLS
Deputy Superintendent
Administrative and Fiscal
Services

DEPARTMENT OF EDUCATION
700 E. Fifth Street
Carson City, Nevada 89701-5096
(775) 687 - 9200 • Fax: (775) 687 - 9101

MOODY STREET OFFICE
1749 Moody Street, Suite 40
Carson City, Nevada 89706-2543

Dear educators,

The following materials, developed in cooperation with the Nevada Department of Education and our educational laboratory, WestEd, are designed to be used as part of a guided instructional activity to support student performance on assessments. While these materials can provide students with practice in answering assessment items, we believe it is critical that these materials be used to help students understand the elements of the state assessment and to guide them in the use of effective strategies that will support their ability to comprehend and take a variety of assessments. If you choose, however, to use this support document solely as a practice activity, we highly recommend that you go back over each item with students and investigate each response to better understand their knowledge of the assessment.

Types of Questions

The mathematics test includes two basic types of questions—multiple-choice items for all grades (3 through high school) and constructed-response items for grades 4 through 8. To help prepare students for constructed-response questions, we have provided you with:

1. the student checklist (included in the student test booklet at grades 4 and 5)
2. the general student rubric (included in the student test booklet at grades 6 through 8)
3. item-specific rubrics

With the use of these materials, students can become familiar with the different types of questions used on the state assessments. They can learn to use the checklist or rubric to determine if they have answered the constructed-response questions completely. Familiarity with the tools provided as part of the test and the vocabulary of the standards can result in less anxiety on the part of students. Please note that the student checklist and general rubric can be on the walls of your classroom throughout the school year. As you assign constructed-response questions, students can use these tools as they develop their answers.

The types of questions on these documents allow for the assessment of different levels of cognitive demands, which are explained below. The questions are developed so that students can demonstrate mathematical thinking at multiple cognitive levels. Teaching students to identify, write, and use different levels of questioning skills as they assess various mathematical concepts can only lead to improved achievement on classroom, state, and national assessments. The use of this material will assist in the creation of a student who is a powerful mathematical thinker.

Cognitive Ability Levels

The assessment of mathematics as part of Nevada's Proficiency Examination Program includes the assessment of three cognitive ability levels. These ability levels are based on the National Assessment of Educational Progress (NAEP) Aspects of Mathematics. The following are the three levels used in the state of Nevada:

Conceptual Understanding (A-1) – Students will be asked to apply and know facts and definitions. They also will be asked to use and relate models, diagrams, manipulatives or representations of concepts and principles, as well as extend the nature of concepts and principles. The students also will interpret assumptions and relations involving concepts and principles in mathematical settings.

Procedural Knowledge and Skill (A-2) – Students will be asked to use mathematical algorithms to efficiently complete a task. They can perform non-computational tasks such as rounding and ordering. Students also can produce or interpret tables, graphs and constructions. They will use reasoning to connect algorithms and skills to complete a given task.

Problem Solving (A-3) – Students will be asked to use strategies, data, models, and relevant mathematics effectively. They can generate, extend, and modify procedures to fit new situations. Student will be able to judge and document the validity and appropriateness of solutions in novel mathematical and practical situations.

Mathematical Content Literacy

The Nevada Department of Education believes that students are not thoroughly being taught the content and vocabulary of the Nevada Mathematics Content and Process Standards. For example, mean, total, stem and leaf, and translate are terms used in the assessments at grade-appropriate levels and can have different meanings depending upon how the word is used.

Students in Nevada, therefore, must have repeated experiences with **hearing** (oral vocabulary), **reading**, and **writing** the vocabulary of the standards in order to be successful on the state assessment as well as in classroom and district tests. Make sure that your students know the language of the standards that are being tested. They should be able to recognize the vocabulary of the standards when you discuss them in class and read them in texts, and they should be able to effectively use the words in their writing. This will be especially useful when students are working on the constructed-response items of the exam.

We hope that interaction with these instructional support materials will lead to lowered anxiety and better understanding of the assessment task that is being presented to students. If you have questions about the mathematics materials or how to embed this information into your curriculum, please contact Dave Brancamp at dbrancamp@doe.nv.gov or call (775) 687-9133, and he will work with you on making these documents beneficial to you and your students.

Cindy Sharp
K – 12 CRT/HSPE Consultant
Nevada Department of Education

Name: _____

Mathematics

Grade 4

This booklet contains mathematics questions for you to answer. There are two types of questions in this booklet. For the multiple-choice questions, you will be given four answer choices—A, B, C, and D. You are to choose the correct answer from the four choices. Each question has only one right answer. The written-response questions require you to give a written response to a question as indicated in the booklet. You will be given a separate sheet of paper to answer these questions.

You may use the checklist below to help you do a good job when you are answering the written-response questions.

4th Grade Written-Response Checklist

Did I think about the question (and/or directions) that I read?

Yes

No

Did I use the words in **bold** print in the question to give me information?

Yes

No

Did I show all my work and include each step needed to complete the problem?

Yes

No

If I used a diagram, did I label each part of the diagram clearly?

Yes

No

Did I answer all parts of the question?

Yes

No

1 Which distance is **shortest**?

- A 100 centimeters
- B 100 kilometers
- C 100 meters
- D 100 millimeters

2 Look at the number pattern below.

88, 96, 104, 112, __

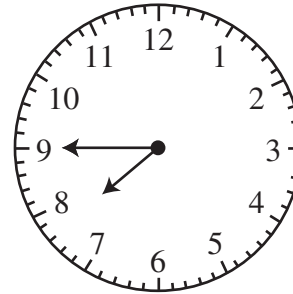
The pattern continues. Which number is next in the pattern?

- A 124
- B 120
- C 118
- D 113

3 What is 4,954 rounded to the nearest hundred?

- A 4,900
- B 4,950
- C 5,000
- D 5,050

4 Johanna left her house at 7:45 A.M., as shown on the clock below.



Johanna took exactly 20 minutes to get to school. What time did she arrive at school?

- A 8:00 A.M.
- B 8:05 A.M.
- C 8:10 A.M.
- D 8:15 A.M.

5 Look at the four numbers shown below.

55,457 55,546 54,456 54,547

Abby listed the four numbers in order from **greatest** to **least**. What was the **second** number in Abby's list?

- A 55,457
- B 55,546
- C 54,456
- D 54,547

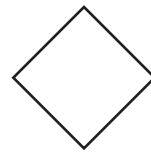
- 6** Dana's gumball machine is filled with 18 yellow gumballs, 7 green gumballs, and 5 red gumballs. Which **best** describes the chance that the next gumball randomly dropped from Dana's machine will be colored yellow?

A certain
B impossible
C likely
D unlikely

- 7** Ms. Hughes has \$26.00 . She plans to give each of her 4 children an equal amount of the money. What is the **greatest** amount of money Ms. Hughes can give each child?

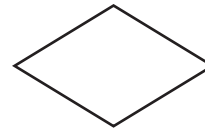
A \$6.75
B \$6.50
C \$5.20
D \$5.00

- 8** Tammy drew the polygon shown below.



Ivan drew a polygon that is similar, but **not** congruent, to Tammy's polygon. Which could be Ivan's polygon?

A



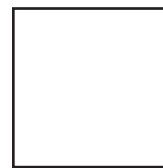
B



C



D



- 9** Noah and Mark are playing a game. Each boy starts the game with 15 points. At the end of the game, Noah had won 3 points and lost 2 . Mark had lost 3 points and won 2 . Which number sentence correctly compares the number of points Noah and Mark had at the end of the game?

A $15 + 3 - 2 = 15 - 3 + 2$
B $15 + 3 - 2 < 15 - 3 + 2$
C $15 + 3 - 2 > 15 - 3 + 2$
D $15 + 3 - 2 \wedge 15 - 3 + 2$

Write your answer to Question 10 on a separate sheet of paper. Be sure to answer Parts A and B.

10

The distance from Lori's house to her school is 2 **miles**.

A What is the distance, in **yards**, from Lori's house to her school? Show your work.
(1 mile = 1,760 yards)

B The distance from Jamie's house to the same school is **greater** than the distance from Lori's house to the school.

Write a distance, in **feet**, that could be the distance from Jamie's house to the same school.
Show your work. (1 yard = 3 feet)

11

Find the quotient: $588,444 \div 6$

- A** 9,474
- B** 9,874
- C** 94,744
- D** 98,074

12

A case of juice has 12 bottles. Amy buys a case of juice each week. Which list shows the total number of bottles Amy will have bought by the end of each week for 4 weeks?

- A** 12, 36, 48, 50
- B** 12, 24, 36, 48
- C** 12, 24, 34, 44
- D** 12, 22, 32, 42

13

A number is missing in the number sentence below.

$$\underline{\hspace{1cm}} \times 12 = 132$$

What number makes the number sentence true?

- A** 11
- B** 12
- C** 21
- D** 22

14

Ms. Linden bought a pen for \$2.85, an eraser for \$0.25, and a pencil for \$1.33 .
What is $\$2.85 + \$0.25 + \$1.33$?

- A** \$3.43
- B** \$3.44
- C** \$4.34
- D** \$4.43



15

Ms. Wong made a pictograph to show the results of a class election. Each of Ms. Wong's 20 students voted once. The pictograph below shows the number of votes Albert, Brooke, and Callie received. David received the rest of the votes.

Class Election

Student	Number of Votes
Albert	✕ ✕ ✕
Brooke	✕ ✕ ✕ /
Callie	✕ /
David	

Key
✕ = 2 votes

Which shows the number of votes David received in the class election?

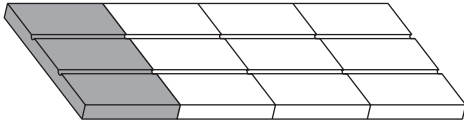
A ✕ ✕

B ✕ ✕ ✕ ✕

C ✕ ✕ ✕ ✕ ✕ ✕ ✕

D ✕ ✕ ✕ ✕ ✕ ✕ ✕ ✕ ✕ ✕ ✕ ✕ ✕ ✕

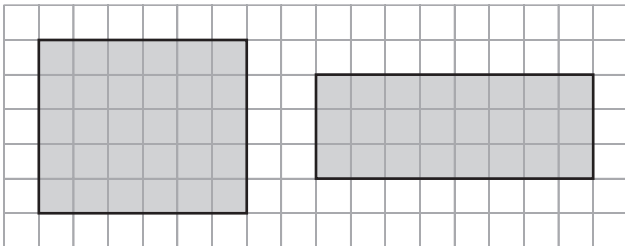
- 16** A chocolate bar has 12 equal-sized pieces. The shaded part of the diagram below shows the pieces that Joey ate.



What fraction of the chocolate bar did Joey eat?

- A $\frac{9}{12}$
- B $\frac{6}{12}$
- C $\frac{4}{12}$
- D $\frac{3}{12}$

- 17** Look at the two shaded rectangles on the grid below.



Which statement best compares the areas and the perimeters of the two rectangles?

- A The rectangles have equal areas and equal perimeters.
- B The rectangles have equal areas and different perimeters.
- C The rectangles have different areas and equal perimeters.
- D The rectangles have different areas and different perimeters.

- 18** A number is missing in the number sentence below.

$$6 + \underline{\quad} = 13$$

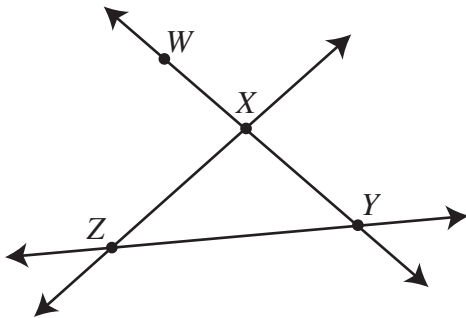
What number is missing?

- A 5
- B 7
- C 9
- D 11

- 19** At the beginning of a school year, a P.E. teacher had 125 tennis balls for the students to use. Each month, about 6 tennis balls were lost. Which is the **best** ESTIMATE of the total number of tennis balls the P.E. teacher had after 6 months?

- A 25 to 35 tennis balls
- B 90 to 100 tennis balls
- C 105 to 115 tennis balls
- D 120 to 130 tennis balls

- 20** Points W, X, Y, and Z are located on three intersecting lines, as shown below.



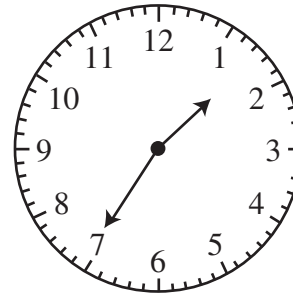
Which two rays do **not** intersect?

- A ray WX and ray XY
- B ray ZX and ray WY
- C ray XW and ray ZY
- D ray XZ and ray YZ

- 21** Subtract: $806 - 749$

- A 57
- B 63
- C 143
- D 167

- 22** Marta took 20 minutes to eat her lunch. After she ate, she played outside for 15 minutes, and then came back inside at 1:35 P.M., as shown on the clock below.



What time did Marta start eating lunch?

- A 12:00 P.M.
- B 12:10 P.M.
- C 1:00 P.M.
- D 1:20 P.M.

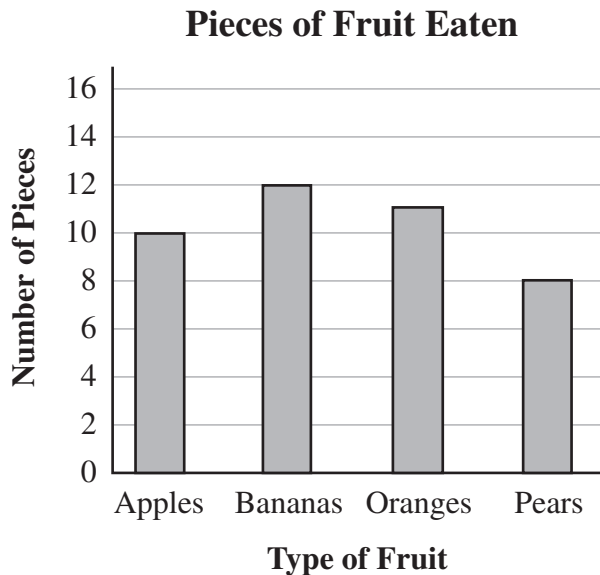
- 23** Two numbers are missing in the number pattern shown below.

17, 21, 25, __, __, 37, 41

What numbers complete the pattern?

- A 30 and 35
- B 29 and 33
- C 28 and 33
- D 26 and 27

- 24** The bar graph below shows the total number of pieces of fruit eaten in a week by the students in Mr. Wilson's class.



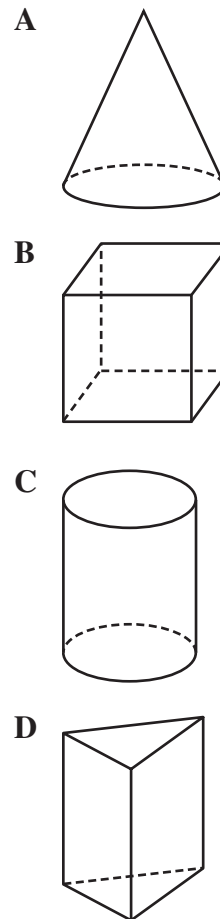
Based on the graph, which type of fruit was eaten the **most**?

- A apples
- B bananas
- C oranges
- D pears

- 25** There were 1,097 children who visited a dinosaur museum. Each child received 5 dinosaur stickers. What is the total number of dinosaur stickers the children received?

- A 5,485 stickers
- B 5,605 stickers
- C 9,085 stickers
- D 9,535 stickers

- 26** Which geometric figure has exactly 5 faces?



27Find the product: $\$101.46 \times 7$

- A \$707.82
- B \$709.82
- C \$710.22
- D \$773.22

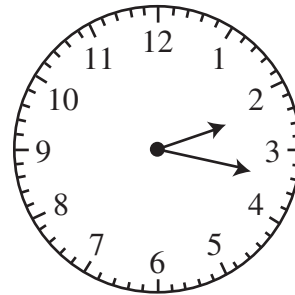
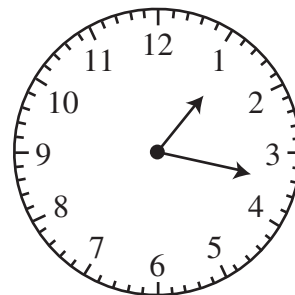
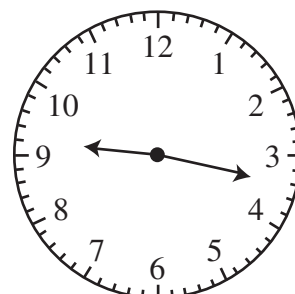
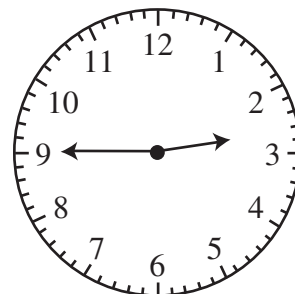
28

Mr. Miller has 8 packs of special paper for class art projects. Each pack contains 240 sheets of paper. He separates the paper into 5 equal-sized piles. What is the total number of sheets of special paper in each pile?

- A 424 sheets
- B 384 sheets
- C 150 sheets
- D 60 sheets

29

Which clock shows 2:17 ?

A**B****C****D**

Write your answer to Question 30 on a separate sheet of paper. Be sure to answer Parts A, B, and C.

30

Kenny is playing a game with a special number cube. The faces of the cube are numbered 1, 2, 2, 3, 3, and 3. Kenny rolls the cube and looks at the number on the top face.

- A Which number is **least likely** to be on the top face of the cube on Kenny's roll? Explain your thinking.
- B Which word (unlikely, likely, impossible, or certain) **best** describes the chance that Kenny's roll shows a number less than 4 on the top face? Explain your thinking.
- C Describe a roll of the cube that is **impossible** for Kenny to roll. Explain your thinking.

31

What is the standard form of $400,000 + 30,000 + 500 + 2$?

- A 430,502
- B 430,052
- C 403,502
- D 403,052

32

The numbers below are the first five numbers in a pattern.

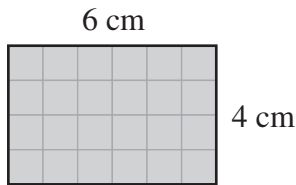
5,184 1,728 576 192 64

Which rule could have been used to create the pattern?

- A add 3,456 to the previous number to get the next number
- B subtract 3,456 from the previous number to get the next number
- C multiply the previous number by 3 to get the next number
- D divide the previous number by 3 to get the next number



- 33** A rectangle is 6 centimeters (cm) long and 4 cm wide, as shown below.



What is the area of the rectangle?















- A 48 cm²
- B 24 cm²
- C 20 cm²
- D 10 cm²


- 34** What number, written in words, is “two hundred thirty-three thousand twenty-three”?

- A 23,233
- B 23,323
- C 203,323
- D 233,023

- 35** The pictograph below shows the number of boats seen on a lake during one weekend.

Number of Boats on a Lake during One Weekend

Fri	  
Sat	     
Sun	    

Key	
	= 9 boats

Which list shows the total number of boats seen on the lake each day from Friday through Sunday?

- A 27, 54, 45
- B 18, 36, 30
- C 12, 15, 14
- D 3, 6, 5

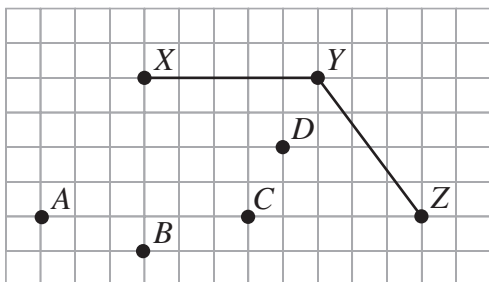
- 36** Jim is buying a toy that costs \$0.99 . He had 9 pennies and then found 15 more pennies in his room. Jim’s mother gave him some more coins to make exactly \$0.99 . Which could be all the coins Jim received from his mother?

- A 9 dimes and 9 pennies
- B 4 quarters and 24 pennies
- C 2 quarters and 5 nickels
- D 1 dime and 12 nickels

- 37** Jake feeds his horse between 7 pounds and 8 pounds of special food each day. Which is the **best** ESTIMATE of the amount of special food Jake feeds his horse in 30 days?

A between 50 pounds and 60 pounds
 B between 70 pounds and 80 pounds
 C between 100 pounds and 200 pounds
 D between 200 pounds and 250 pounds

- 38** Kayla used grid paper to draw two sides of a rhombus with vertices X, Y, and Z, as shown below.



Which point appears to be the fourth vertex of Kayla's rhombus?

A point A
 B point B
 C point C
 D point D

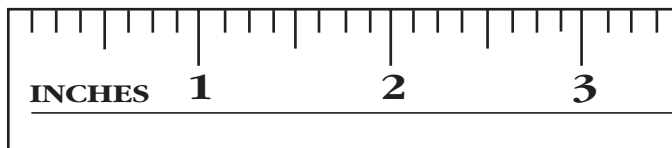
- 39** A symbol is missing in the number sentence below.

$$9 \bigcirc 8 < 12$$

Which symbol could be placed in the \bigcirc to make the number sentence true?

A +
 B <
 C -
 D =

- 40** Use the ruler in the diagram below to measure the length of the paper clip to the nearest $\frac{1}{2}$ inch.



What is the length of the paper clip?

A $2\frac{1}{2}$ inches
 B 2 inches
 C $1\frac{1}{2}$ inches
 D 1 inch



You may want to go back and check your answers or answer questions you did not complete.



GRADE

4

Appendix I

Scoring Support Materials

Nevada

Grade 4

MATHEMATICS

Correct Answers for Multiple-choice Items

Item Number	Correct Answer	Content Cluster	Ability Level
1	D	C3	A1
2	B	C2	A2
3	C	C1	A1
4	B	C3	A2
5	A	C1	A2
6	C	C4	A1
7	B	C1	A3
8	D	C3	A1
9	C	C2	A2
10	*	C3	A3
11	D	C1	A2
12	B	C2	A3
13	A	C1	A1
14	D	C3	A2
15	A	C4	A3
16	D	C1	A1
17	C	C3	A3
18	B	C2	A1
19	B	C1	A3
20	C	C3	A1

Item Number	Correct Answer	Content Cluster	Ability Level
21	A	C1	A2
22	C	C3	A3
23	B	C2	A1
24	B	C4	A1
25	A	C1	A3
26	D	C3	A1
27	C	C1	A2
28	B	C1	A3
29	A	C3	A1
30	*	C4	A3
31	A	C1	A1
32	D	C2	A3
33	B	C3	A2
34	D	C1	A1
35	A	C4	A3
36	C	C3	A3
37	D	C1	A2
38	C	C3	A1
39	C	C2	A1
40	B	C3	A2

*Indicates a written-response item. See the following pages for the rubrics and examples of responses.

**Detailed objectives for Content Standards and Ability Levels can be found
on the Nevada Department of Education Website.**

Question: 10

Score	Description
3	Student scores 3 points.
2	Student scores 2 – 2.5 points.
1	Student scores 0.5 – 1.5 points.
0	Student's response provides insufficient evidence of appropriate skills or knowledge to successfully accomplish the task.
Blank	No student response.

Description of Score Points:

Part A:	score 1.5 points	correct answer with correct work
	OR	
	score 1.0 point	correct answer with incomplete or no work
	OR	
		incorrect answer due to calculation error, with complete work
	OR	
	score 0.5 point	some correct procedure
Part B:	score 1.5 points	correct answer (based on answer to Part A) with correct work
	OR	
	score 1.0 point	correct answer with incomplete or no work
	OR	
		incorrect answer due to calculation error, with complete work
	OR	
	score 0.5 point	some correct procedure

Sample 3-Point Answer:**Part A:** 3,520 (yards)

$$\begin{array}{r}
 11 \\
 1760 \\
 \times 2 \\
 \hline
 3520
 \end{array}
 \quad \text{or equivalent work}$$

Part B: Answers may vary. Correct answers must be greater than 10,560 feet.**Sample answer:** 11,000 (feet)

$$\begin{array}{r}
 1 \\
 3520 \\
 \times 3 \\
 \hline
 10560 \\
 11,000 > 10,560
 \end{array}
 \quad \text{or equivalent work}$$

Question: 30

Score	Description
3	Student scores 3 points.
2	Student scores 2 – 2.5 points.
1	Student scores 0.5 – 1.5 points.
0	Student's response provides insufficient evidence of appropriate skills or knowledge to successfully accomplish the task.
Blank	No student response.

Description of Score Points:

Part A:	score 1.0 point OR score 0.5 point	correct answer with complete explanation correct answer with incomplete or no explanation OR some correct procedure
Part B:	score 1.0 point OR score 0.5 point	correct answer with complete explanation correct answer with incomplete or no explanation OR some correct procedure
Part C:	score 1.0 point OR score 0.5 point	correct answer with complete explanation correct answer with incomplete or no explanation OR some correct procedure

Question: 30 (continued)

Sample 3-Point Answer:

Part A: 1

Sample explanation:

The number 1 is least likely to be on the top face of the cube because the number 1 is only on one face of the cube, compared with the number 2 on two faces and the number 3 on three faces of the cube.

Part B: certain

Sample explanation:

It is certain that Kenny will roll a number less than 4 because each face of the cube is numbered with a number less than 4 — 1, 2, 2, 3, 3, and 3 are all less than 4.

Part C: Answers may vary. Correct answers are any number other than 1, 2, or 3.

Sample answer/explanation:

The number 4 is impossible for Kenny to roll on the cube because the number 4 is not a number on the face of the cube.



GRADE

4

Nevada

Appendix II

Administrative Support Materials

Grade 4

MATHEMATICS

Name: _____

Answer Document

Mathematics

1.	(A)	(B)	(C)	(D)
2.	(A)	(B)	(C)	(D)
3.	(A)	(B)	(C)	(D)
4.	(A)	(B)	(C)	(D)
5.	(A)	(B)	(C)	(D)
6.	(A)	(B)	(C)	(D)
7.	(A)	(B)	(C)	(D)
8.	(A)	(B)	(C)	(D)
9.	(A)	(B)	(C)	(D)
10. Written Response				
11.	(A)	(B)	(C)	(D)
12.	(A)	(B)	(C)	(D)
13.	(A)	(B)	(C)	(D)
14.	(A)	(B)	(C)	(D)
15.	(A)	(B)	(C)	(D)
16.	(A)	(B)	(C)	(D)
17.	(A)	(B)	(C)	(D)
18.	(A)	(B)	(C)	(D)
19.	(A)	(B)	(C)	(D)
20.	(A)	(B)	(C)	(D)

21.	(A)	(B)	(C)	(D)
22.	(A)	(B)	(C)	(D)
23.	(A)	(B)	(C)	(D)
24.	(A)	(B)	(C)	(D)
25.	(A)	(B)	(C)	(D)
26.	(A)	(B)	(C)	(D)
27.	(A)	(B)	(C)	(D)
28.	(A)	(B)	(C)	(D)
29.	(A)	(B)	(C)	(D)
30. Written Response				
31.	(A)	(B)	(C)	(D)
32.	(A)	(B)	(C)	(D)
33.	(A)	(B)	(C)	(D)
34.	(A)	(B)	(C)	(D)
35.	(A)	(B)	(C)	(D)
36.	(A)	(B)	(C)	(D)
37.	(A)	(B)	(C)	(D)
38.	(A)	(B)	(C)	(D)
39.	(A)	(B)	(C)	(D)
40.	(A)	(B)	(C)	(D)

**WRITTEN RESPONSE
MATHEMATICS**

**D
O
N
O
T
W
R
I
T
E
I
N
T
H
I
S
S
P
A
C
E**

DO NOT WRITE IN THIS SPACE

STOP

**WRITTEN RESPONSE
MATHEMATICS**

**D
O
N
O
T
W
R
I
T
E
I
N
T
H
I
S
S
P
A
C
E**

DO NOT WRITE IN THIS SPACE

STOP



Keith W. Rheault

Superintendent of Public Instruction

Office of Assessment, Program Accountability, and Curriculum
775-687-9188

CRT • Instructional Materials